

## High Prevalence of ADHD: How Best can we Identify Cases of ADHD from the General Population?

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### Abstract

The high prevalence of attention deficit hyperactivity disorder (ADHD) demonstrated in the last decades in the child and adult population carried us to examine how best we can identify cases of ADHD from the general population. In doing so, we note that different methodologies are used for obtaining data, as well as different diagnostic criteria. An additional finding of considerable interest for this line of reasoning is the medicalization of ADHD. Our assumption is that this tendency for prescribing certain medications is caused by the relentless pressure of pharmaceutical companies and not only as a result of clinical judgment.

**Keywords:** ADHD; Diagnosis; Prevalence; Comorbidity; Neurodevelopment

### Introduction

Major advances have been made over the past decades in understanding the difficulties of children and adults with ADHD (attention deficit/hyperactivity disorder (ADHD)). In spite of it, numerous research studies have documented the increase of people diagnosed with ADHD in the last few decades [1]. Thus, the aim of this paper has been to provide the cornerstones for a basic understanding of such high prevalence of ADHD.

Recent population-based studies indicate that ADHD is a condition affecting approximately 5% of the child population [2]. If this is the case, yet significant evidence exists that far fewer children receive ADHD services [3]. As a result of it, in many countries concerted serious efforts directed at earlier detection and diagnosis of ADHD are well justified. In fact, the diagnosis in practice is made with remarkable differences in frequency between nations. At the same time, taking into consideration individual differences, the data over the past 10 years have shown that there is great heterogeneity in the diagnostic methods for children and adults with ADHD.

Given all of the preceding, it is not surprising that McLennan [4] recently reported on the need to de-emphasize categorical conceptualizations of ADHD. To arrive at this conclusion, research findings were reviewed to consider whether ADHD is a discrete entity or whether it is more consistent with an extreme end-of-trait distribution in the population. All studies published from this search and that involve empirically based studies support a predominately dimensional rather than a qualitatively distinct existence for ADHD. From a practical standpoint, it is clear that, whatever approach is used, this does not negate the clinical needs of those who have substantial ADHD symptoms clusters, nor the risks that such symptoms entail [4].

In addition, many clinicians, educators, and parents tend to focus their attention on different cognitive and behavioral measures and the like to determine the degree of expression of ADHD in the children under observation. With this in mind, it is also interesting to recall a set of studies that provide evidence of medicalization of ADHD [5]. As a consequence of it, many ADHD experts have asserted that this is likely to be the case for pressure of pharmaceutical companies and not only as a result of clinical judgment.

Of course, many would agree that it is unlikely that any single type of intervention will be sufficient to mitigate the complex developmental disturbances of ADHD. Rather, future effective intervention may need

to combine both biological (e.g. pharmacological) and cognitive-behavioral approaches to most effectively address the needs of children and adults with ADHD. Understanding the biological substrates of ADHD may be critical to guiding the development of effective intervention strategies within both modalities.

### Effects of Clinical Guidelines for ADHD Diagnosis

We have learned that, despite the fact of using conventional clinical guidelines for ADHD, these are not applied in the same way by clinicians and educators. To this extent, they are not the only explanatory factor postulated for such a significant increase in the prevalence of ADHD in recent decades. Many experts have asserted that this very likely was related to ADHD requires multimodal treatment. Because we do not know the “active ingredient” behind successful ADHD treatments, there is relatively little understanding of whether certain treatments are better than others and, if so, for whom and when [6].

In the same vein, a large body of research has also evidenced a range of factors influencing diagnosis, irrespective of the guidelines used, and hence some part of the increase might simply be an artifact of the use of different clinical tools or criteria for diagnosis. Supporting these assertions there are some cases where ADHD has been diagnosed when it was manifested solely in the school context and not in the family environment. However, this way of doing diagnosis is contrary to the recommendations of many ADHD experts.

It is also important to note that the measures based on reported information capitalize on the knowledge of a familiar person who interacts with the child on a daily basis. However, parents or teachers may over- or underestimate the child’s social difficulties. The accuracy of the information gathered from any source of information, such as a parent or teacher, needs to be documented.

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Parents who are concerned about their child's development early on often seek professional advice and diagnosis at this stage [7]. For many families, the primary purpose in obtaining a diagnosis for a child in preschool or younger is to gain access to services. Overall, in order to make a diagnosis on ADHD, clinicians generally rely on diagnostic instruments, both child observation and parent-report measures.

For clinicians, a diagnosis of ADHD can be very helpful in generating working hypotheses about the nature of the disorder and ways that intervention can be used to change its course. For example, a school child with ADHD who has temper tantrums is likely behaving this way, at least in part, because he is unable to make sense of his environment and to appropriately communicate his resulting frustration. This hypothesis predicts that the child can be helped to better understand what is going to happen and what is expected of him, and he is given more option to communicate his preferences, tantrums should decline.

### Viewing ADHD and Other Disorders Together

There is also consensus in the studies conducted to date that there is high comorbidity of ADHD with other disorders, such as behavioral disorders as has been corroborated in studies from the 1990s to present by the American Psychological Association (APA). Thus, many behavioral disorders sharing symptoms with ADHD require children to remain in mainstream education, receiving treatment specific to their needs, which makes identifying cases of ADHD difficult to quantify [8].

How can then the use of different tools and criteria for diagnosis ADHD be encouraged? Aside from information about response to treatment, a meaningful diagnosis should provide a family with information about anticipated developmental changes in the disorder. For parents, a diagnosis within the ADHD spectrum can also mean some relief from guilt that they have somehow caused their children's problems. The prospective identification and later treatment of children with ADHD-in particular, in cases in which parents and professional had not previously had concerns about child's development-presents new challenges to clinical practice. In fact, parents tend to rate their children as more impaired than the researcher does. Derived from it, seems very advisable to instruct parents on behavioral-observation scales and effective social-educational interventions.

Providing a prompt service in addressing parental concern is, of course, very different from finding a problem that a parent does not suspect. For a parent to make use of information about his or her child, it first has to make sense, and he or she has to be ready to agree it. The knowledge that there are other families with children or adults who have similar behaviors and who have responded to treatment can offer hope and practical strategies.

As result of it, these different considerations will affect the results that can be achieved, thus reducing the incongruities in data relating to the frequency and intensity of symptoms associated with ADHD. At the same time, it also should influence on the reduction in medication that would need to be prescribed, as increased parental involvement tends to be accompanied by resistance to their children taking medicines. An honest, straightforward, and informed approach to the initial process of referral, further assessment, and any possible consequences should be the beginning of a dialogue between the parents and professionals about the child's development.

Another critical factor is the use of different tests in collecting data on prevalence, given the marked differences in scientific terms that have been detected between American and European tests when applied.

While the latter are more restrictive and result in lower percentages, the former tests identify higher percentages in comparison. In addressing these results, one issue relevant to the conceptual framework is: what does explain this mismatch in percentages? Several researchers have suggested that it may be due to the absence of a clear psycho (patho) logical frontier between personality and pathology when clinicians examine the behavioral manifestations of individuals.

Crucially, too, there is reliable evidence concerning which tests work best with which population. According to the recent studies, most of the tests described herein have involved adult population. However, when they are applied to a young population, an important evaluative factor relating to their cognitive-behavioral stage is neglected. In addition, the tools and tests are carried out and rated with Anglophone populations, ignoring the latent socio-cultural factors that act in concert on the performance and subsequent theoretical interpretation of the data obtained. There is much argument about whether this dimension is important and merits further investigation. In the same vein, every serious researcher should be in mind that each human being develops as a unique melding of biological and social forces, which interact throughout life to create an individual path of development.

At this point, one might ask that if the most important therapeutic goal in the treatment of ADHD is the reduction of difficulties relating to attention, impulses, and hyperactivity, should be considered also the age of individual an important factor to assess in the symptomatic expression of the condition? If it does not, whoever treat such individuals should consider different symptomatic expressions associated with relatively gross personal, socio-family and educational implications. In sum, research into this complex syndrome could take this into account for adapting the evaluative tests. Because typical development proceeds at such a rapid pace, it is not surprising that some years ago researchers began to investigate normative data in the school age population. Hopefully, they focused their efforts on executive functioning (EF) in response to the serious implications of psycho-physiological functions [9], such as anticipation and self-regulation in tasks linked to the coordination of cortical and sub-cortical frontal lobes. The neural substratum and evolutionary patterns of such components is also being analyzed.

Although current research has not provided all of the needed answers, clinicians need to treat children with ADHD now. Thus the diagnosis of ADHD is based strongly on clinical criteria. Specific to comparing the criteria included in DSM-IV-R to those in DSM-5, a higher relevance is given to symptoms than to dysfunctions. Linked to this, [10] recently reported that the publication of DSM-5 has provided more clear diagnostic criteria for adult ADHD, but a solid framework supporting the transition of ADHD management from pediatric to adult primary care is lacking. Furthermore, while one of the requisites in DSM-IV-R was that certain symptoms were linked to the dysfunction before the individual was seven years old (criterion B), in at least two different scenarios (criterion C), DSM-5 raises the age threshold, also making explicit reference to the co-presence of symptoms. Additionally, we also note that while DSM-IV-R required "clear evidence of dysfunction that was significant to clinical level and observed in the social, academic, and occupational spheres (criterion D), there is no such requirement in DSM-5. As for DSM-5, the only comparable requisite is that the symptoms "interfere or reduce the quality" of some of such spheres. In sum, there is reason to consider the inherent difficulty of establishing whether the symptoms might cause a significant clinical dysfunction or merely an inconvenience to daily life to a greater or lesser degree. Therefore, caution must be used,

although parents and others will inevitably notice ADHD at some stage. In practice, even when tests have positive predictive value, the decision taken will influence the diagnosis of ADHD. This issue is made more significant by the fact that the scales that have been used until now for clinical evaluation are insufficient. In fact, investigators find a poor correspondence between symptoms and dysfunction when scoring individuals, for instance in the social or academic spheres. Hence, those who are impelled to make an evaluation are commonly parents and educators, who are guided in this “imposed” task by what they consider to be a pathological behavior.

According to the diagnostic manuals and books, neither DSM nor ICD capture the complex heterogeneity of ADHD, which many researchers consider may be associated with the use of a categorical rather than a dimensional system. If this assertion is accurate, then the categorical spectrum precise a clear distinction between normal and abnormal, not still enough detailed when is translated to the domain of ADHD. Regardless of it, there is also studies that suggest that the ADHD subtypes (hyperactive-impulsive, non-attentive, and combinations of both) show serious differences in cognitive operation, making the deterioration associated with one subtype or another exhibit a marked heterogeneity. This hypothesis has already been tested with individuals with ADHD [11]. Although it is very difficult to determine the scope of it, researchers corroborate the existence of different types of individual patterns linked to the attentive, impulsive and excessive motor arousal. In fact, at least two types of attention have been found, one selective attention and the other joint attention, the former more characteristic of the inattentive subtype of ADHD and the latter the combining type of ADHD. Taking into consideration these individual differences, within impulsivity has been documented the distinction between cognitive impulsivity, associated with tackling tasks and general learning style, and motor impulsivity, caused by a lack of motor control, and which is observed more predominantly in children with a combined type of ADHD.

## Concluding Remarks

As summarized, the evidence base is not yet available to make confident recommendations as to how *best* to prospectively treat ADHD cases. Thus, future research should strive to document the clinical and socio-educational issues that need to be considered in further screening for ADHD. If there were a way to systematically and efficiently identify, out of the diverse population which children are more likely to have an ADHD, this would be another opportunity for a timely referral to a specialized diagnostic assessment so that intervention could be tailored appropriately.

To sum up, it is a truism that no single approach can best meet the needs of all children and adults with ADHD and that individualization of approach to maximize progress will be necessary to attain the best outcome for an individual [12]. Thus, clinicians without special ADHD training need to seek out the approaches that have empirical support and learn them, rather than relying on general disciplinary therapeutic practices. Certainly, this would be easier to do if treatment manuals and curricula were more readily available.

Finally, parents and educators can learn cognitive-behavioral

techniques at high levels of fidelity, can deliver them at home, and can improve their children’s social abilities, even when parental interventions are the main interventions occurring [6]. The successful diagnosis of child and adult ADHD require consideration of many facets including prior medical history and comorbid conditions and use of an individualized, evidence-based treatment approach.

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